Yellowstone River at Intake Dam Fish Passage and Entrainment Reduction

31MAR2015

U.S. Army Corps of Engineers

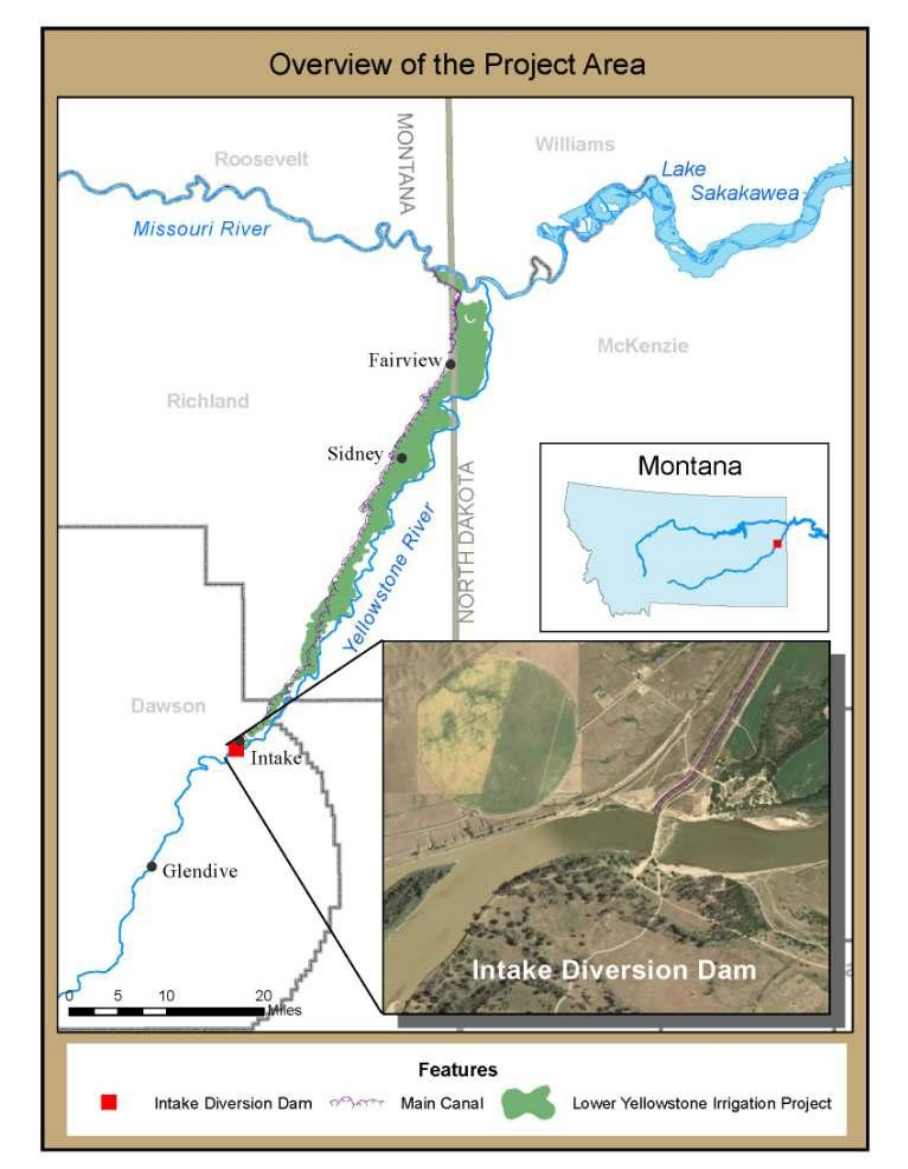
Northwestern Division

Omaha District

US Army Corps of Engineers

BUILDING STRONG®

Lower Yellowstone Irrigation Project (Intake Dam)



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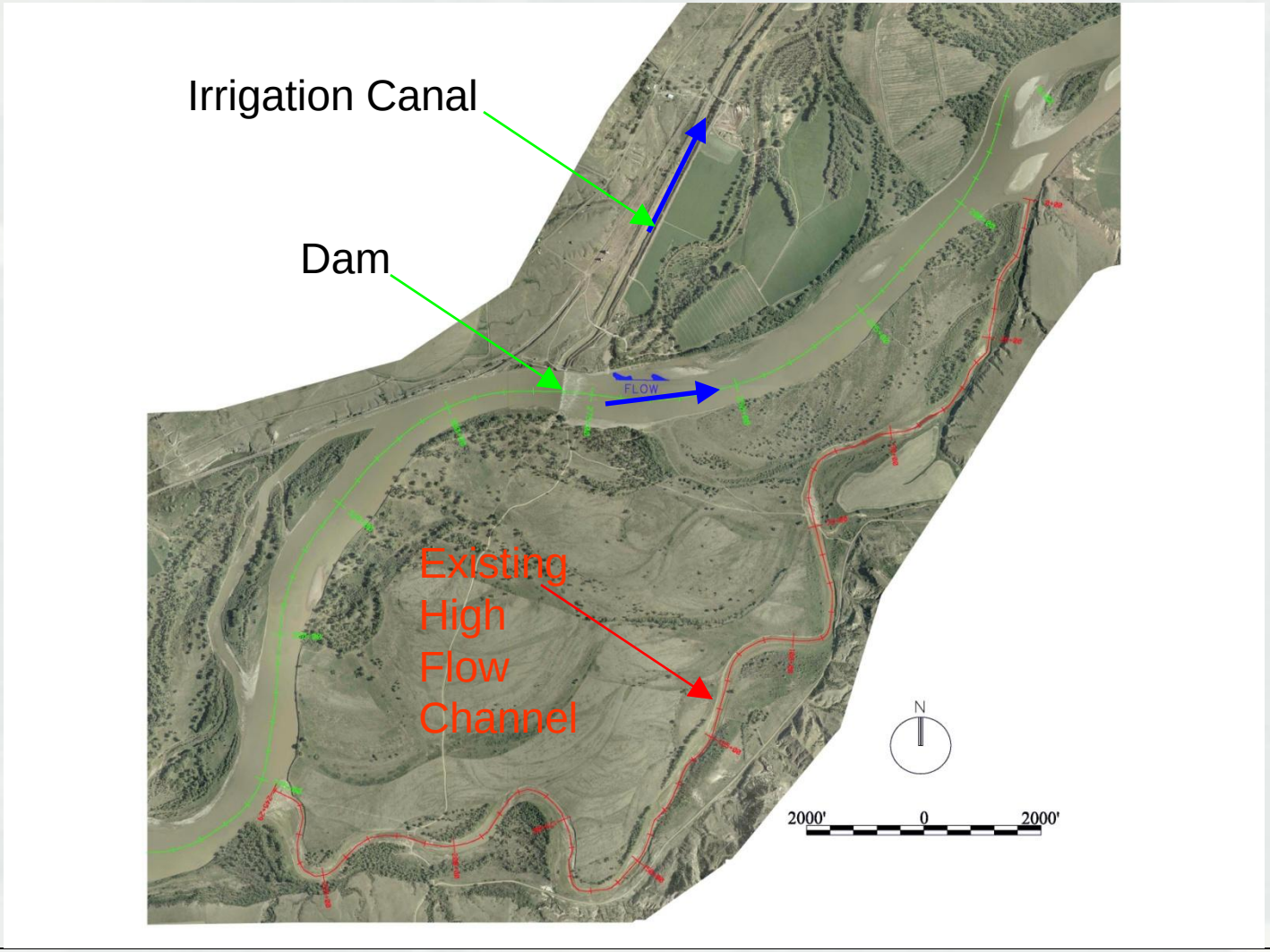
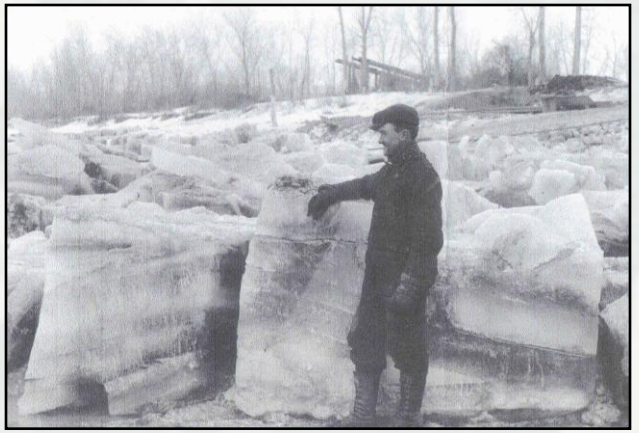


Intake Dam-Overview



Authorization:
Reclamation Act of 1902
Construction:
1905-08 by Reclamation
Operation:
Diverts ~1,374cfs into Main Canal for delivery to ~52,000 acres
Maintenance:
Placement of rock on the crest of dam to maintain head and replace rock washed downstream by high flow and ice

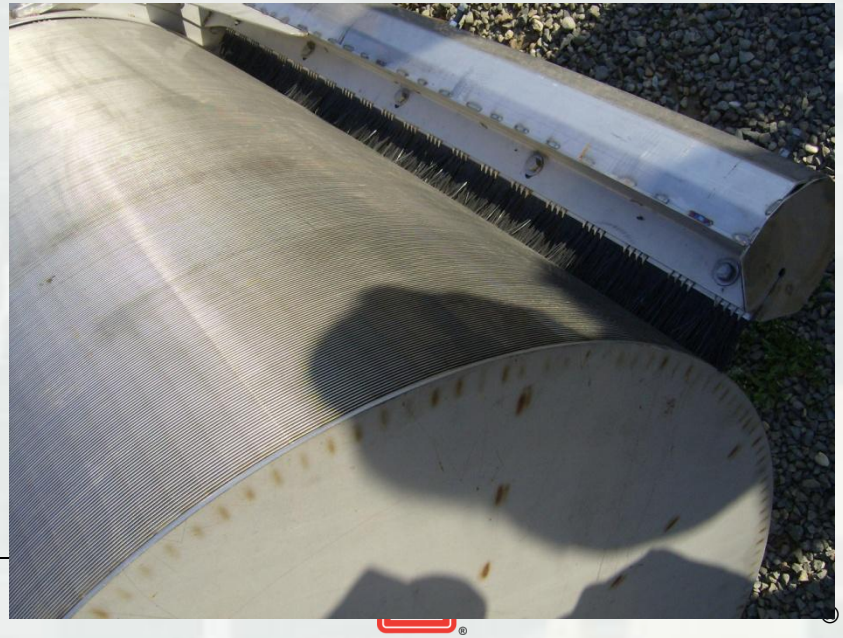
Project Purpose

- Improve upstream and downstream fish passage (especially for the endangered pallid sturgeon, but also for ≈ 38 other native fish species)
- Reduce entrainment into the irrigation canal (new headworks with screens – construction completed in 2012)

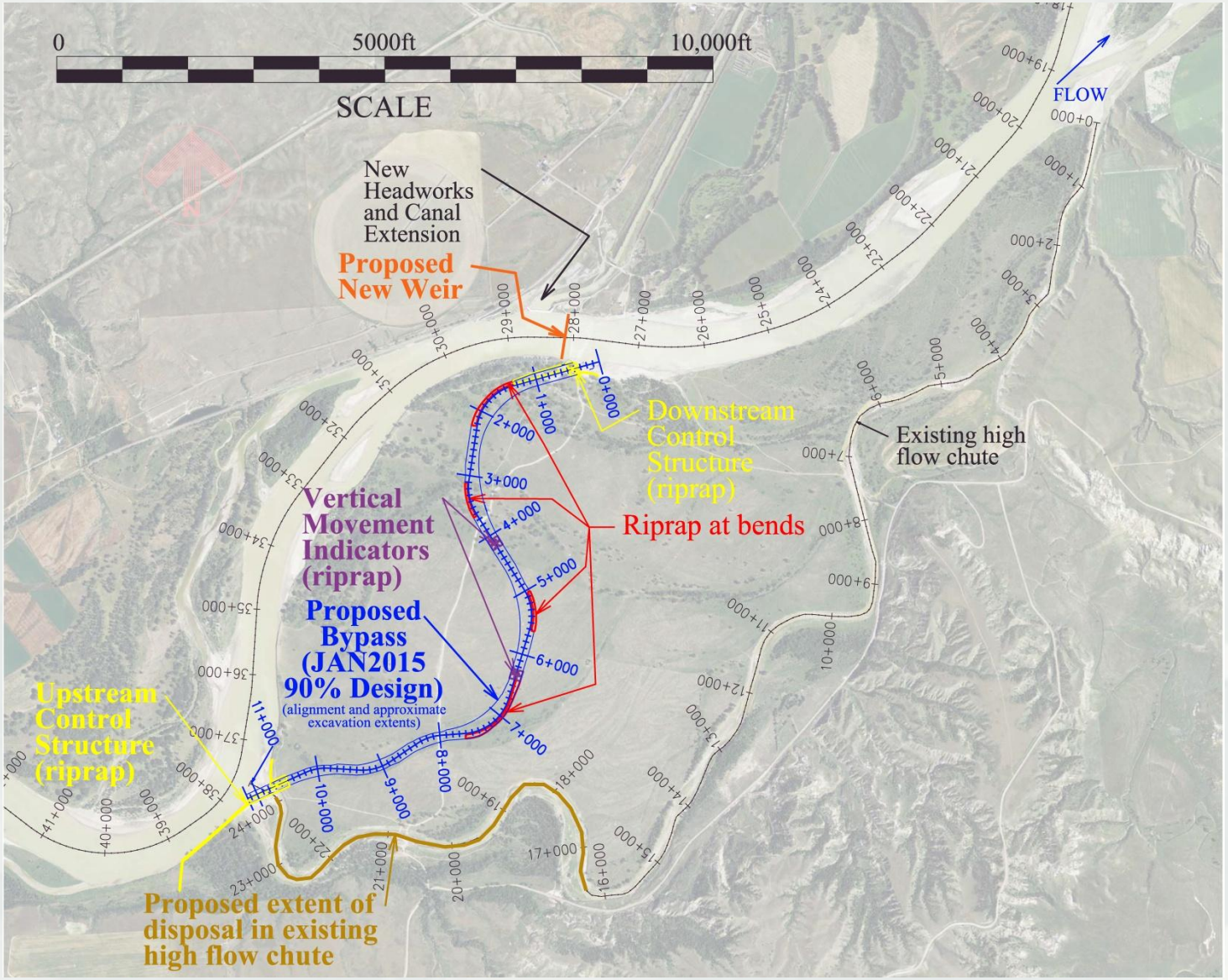
Impediment to fish passage

Entrainment

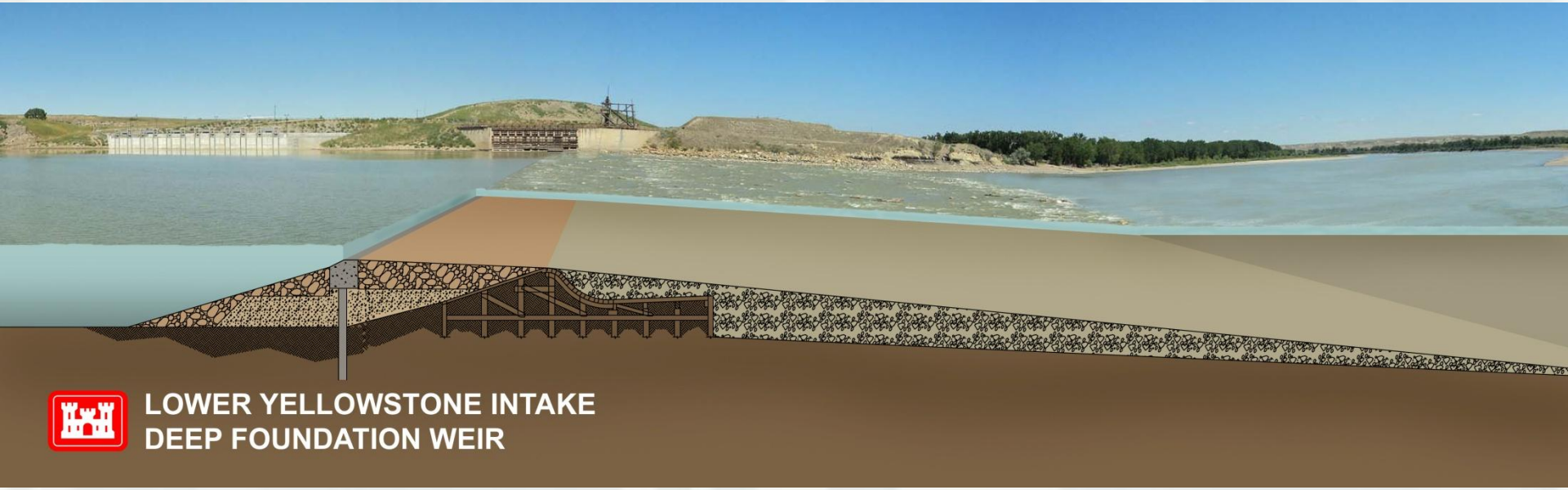
New headworks with screens



Proposed Bypass Channel General Overview



Weir Rendering



Bypass channel

- Length ≈ 11,150 ft
- Width – bottom = 40 ft, top = 150-250 ft
- Depth – 5-20ft, average of ≈ 16 ft
- Slope = 0.0007 ft/ft
- Side slopes range from 1V:8H to 1V:3H with variable cross sections to mimic natural channel
- Excavation of approximately 1,000,000 yd^3

Design considerations

- Highly variable discharge
- Ice
- Sediment balance
- Balance of stakeholder's interests
  - Fish passage
  - Irrigation diversion
  - Recreation

Questions?